

# Meet the National Center on Sleep Disorders Research and the National Heart, Lung, and Blood Institute: Research Opportunities in Sleep Medicine

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The National Heart, Lung, and Blood Institute (NHLBI) supports a broad spectrum of basic research, clinical research, population-based investigations, and research on prevention and health education (Table 1). In addition, the NHLBI has a legislative mandate to transfer findings from medical research to the community through professional and public education (Table 2).

In recognition that sleep disorders are a major public health concern, the United States Congress established the National Center on Sleep Disorders Research (NCSDR) in 1993 to enhance sleep-disorders awareness, facilitate government-wide coordination of sleep research and training, and develop integrative multidisciplinary research programs to fill gaps in the knowledge base. The NCSDR (<http://www.nhlbi.nih.gov/sleep>) is an office of the NHLBI and a focal point of sleep-related interactions within the government, including the national Sleep Disorders Research Advisory Board and the National Institutes of Health (NIH) components involved in sleep disorders research (Tables 3, 4). The NCSDR also partners with nongovernment organizations in a wide range of professional and community education activities. This comprehensive arrangement facilitates the identification of pulmonary and sleep research

opportunities and ensures that findings are developed, evaluated, and transferred to the public as rapidly as possible.

NIH published the National *Sleep Disorders Strategic Research Plan* in 1996 and launched a series of new programs on the genomic, neurobiological, and circadian mechanisms regulating sleep and wakefulness; the restorative function of sleep and the effects of sleep deprivation; sleep-related cardiorespiratory disorders; and the effects of sleep apnea in children. The NCSDR has jointly sponsored program announcements on Basic and Clinical Research on Sleep and Wakefulness and on Biobehavioral Research for Effective Sleep. It has active research grant programs related to the Molecular Biology and Genetics of Sleep and Sleep Disorders (RFA HL-97-015), Obstructive Sleep Apnea in Children (RFA HL-98-004), Phenotypic Characterization of Sleep in Mice (RFA HL-99-001), Development of Mouse Phenotypic Screens (RFA HL-99-010), Genomic Applications for Heart, Lung, and Blood Research (HL-99-024), and Oxygen Sensing During Intermittent Hypoxia (RFA HL-00-004). A new RFA on Sleep and Sleep Disorders in Children (HL-01-006) will focus research on fundamental biological mechanisms through which sleep deprivation and sleep

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*Sleep and Breathing*, volume 5, number 3, 2001. Address for correspondence and reprint requests: Carl E. Hunt, M.D., National Heart, Lung, and Blood Institute, NIH, Two Rockledge Center, 6701 Rockledge Drive, Suite 10038, MSC 7920, Bethesda, MD 20892. E-mail: [huntc@nhlbi.nih.gov](mailto:huntc@nhlbi.nih.gov). <sup>1</sup>Division of Lung Diseases and <sup>2</sup>National Center on Sleep Disorders Research, National Heart, Lung, Blood Institute, NIH, Bethesda, Maryland. Published by Thieme Medical Publishers, Inc., 333 Seventh Avenue, New York, NY 10001, USA. Tel: +1(212) 584-4662. 1520-9512,p;2001,05,03,149,152,ftx,en;jsbr00187x.

**Table 1 Selected NHLBI Research Training and Career Development Programs****Visit the Web Sites Listed Below for Additional Details**

<http://www.nhlbi.nih.gov/funding/training/redbook/slides.htm>

<http://www.nhlbi.nih.gov/funding/training/redbook/index.htm>

**Established Investigators**

Mid-career investigator Award (K24)

- ☐ National Research Service Award for Senior Fellows (F33)

**New Investigators**

- ☐ Mentored Clinical Scientist Development Award (K08), basic and clinical research

Independent Scientist Award (K02)

- ☐ Mentored Patient-oriented Research Career Development Award (K23)

**Students and Postdoctoral Individuals**

Postdoctoral Fellowships (F32)

- ☐ Predoctoral Fellowships (F31) for minorities and disabilities

**Institutional Training Grants (T32)**

- ☐ support for training in basic or clinical research

**Supplements to Research Grants**

Research training for under-represented individuals (all levels)

Research training for minorities and individuals with disabilities (all levels)

Graduate Research Assistants with disabilities

Re-entry into Biomedical and Behavioral Research Careers

**Table 2 NHLBI Selected Contacts for Pulmonary and Sleep Research Programs****Division of Lung Diseases**

OFFICE OF THE DIRECTOR

Phone: (301) 435-0233

Fax: (301) 480-3557

James P. Kiley, Ph.D. (Director)

Carol E. Vreim, Ph.D. (Deputy Director)

**Airway Biology and Disease Program**

**301-435-0202**

Basic and clinical research, education and training related to chronic obstructive pulmonary disease, asthma, cystic fibrosis, control of breathing, bronchitis, respiratory neurobiology, sleep and function of the airways in health and disease. Targeted research programs include molecular biology and genetics of sleep and sleep disorders; the Sleep Heart Health Study; Specialized Centers of Research (SCOR) support clinical and basic research on asthma, cystic fibrosis, neurobiology of sleep and sleep apnea.

**Lung Biology and Disease Program**

**301-435-0222**

Research, education, and training in lung cell and vascular biology; lung growth and development and pediatric lung diseases; acute lung injury and critical care medicine; interstitial lung diseases, including pulmonary fibrosis, sarcoidosis, lymphangioleiomyomatosis; AIDS, and tuberculosis (TB). Specialized Centers of Research (SCOR) on pathobiology of lung development, acute lung injury, and pathobiology of fibrotic lung disease.

**National Center on Sleep Disorders Research**

Carl E. Hunt, M.D. (Director)

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Government-wide coordination of sleep research and training, the National Sleep Disorders Research Advisory Board and the National Institutes of Health (NIH) components involved in sleep disorders research. The NCSDR also partners with nongovernment organizations in a wide range of professional and community education activities.

**Table 3 Selected Web Resources for Sleep-Related NIH Research**

Sleep Academic Award/Med Sleep	<a href="http://www.aasmnet.org/medsleep">www.aasmnet.org/medsleep</a>
Curricular resources for sleep medicine education	
NIH Grants Information	<a href="http://grants.nih.gov">http://grants.nih.gov</a>
NIH Guide, comprehensive listing of RFA and PA	
NIH applications, receipt dates, research policy	
CRISP, online database of all NIH supported research	
Center for Scientific Review: procedures study section rosters	
National Heart, Lung, and Blood Institute	<a href="http://www.nhlbi.nih.gov">www.nhlbi.nih.gov</a>
Clinical research policy and guidelines, OSMB, DSMB	
Inclusion of minorities, gender, and children policy	
Funding guidelines	
Procedure when direct costs exceed \$500,000 in any year	
Guidelines for program projects (P01), demonstration and education grants (R18), conference grants) R13)	
National Center on Sleep Disorders Research	<a href="http://www.nhlbi.nih.gov/sleep">www.nhlbi.nih.gov/sleep</a>
Annual Report on NIH Sleep Research	
Sleep Disorders Research Advisory Board	
NIH-wide program staff representatives for sleep research	
Physician- and patient-oriented information (duplicate freely)	
Public Service Announcements (HealthBeat Radio)	
Youth education campaign on sleep and sleep disorders	
E-mail Network (SleepRFA-L)	<a href="http://list.nih.gov/archives/sleeprfa-l.html">http://list.nih.gov/archives/sleeprfa-l.html</a>

**Table 4 Trans-NIH Sleep Research Coordination Committee**

National Heart, Lung, and Blood Institute
Carl E. Hunt, M.D., (301) 435-0199, <a href="mailto:huntc@nhlbi.nih.gov">huntc@nhlbi.nih.gov</a>
Michael Twery, Ph.D., (301) 435-0210, <a href="mailto:twery@nih.gov">twery@nih.gov</a>
National Institute on Aging
Andrew Monjan, Ph.D., (301) 496-9350, <a href="mailto:am39m@nih.gov">am39m@nih.gov</a>
National Institute on Alcohol Abuse and Alcoholism
Ellen Witt, Ph.D., (301) 443-6545, <a href="mailto:ewitt@willco.niaaa.nih.gov">ewitt@willco.niaaa.nih.gov</a>
National Institute of Child Health & Human Development
Marian Willinger, Ph.D., (301) 495-6896, <a href="mailto:mw75q@nih.gov">mw75q@nih.gov</a>
National Institute on Drug Abuse
Harold Gordon, Ph.D., (301) 443-4877, <a href="mailto:hg23r@nih.gov">hg23r@nih.gov</a>
National Institute of Mental Health
Israel Lederhendler, Ph.D., (301) 443-1576, <a href="mailto:ilu@helix.nih.gov">ilu@helix.nih.gov</a>
National Institute of Neurological Disorders and Stroke
Paul Nichols, Ph.D., (301) 496-9664, <a href="mailto:pn13w@nih.gov">pn13w@nih.gov</a>
National Institute of Nursing Research
Karin Helmers, Ph.D., (301) 594-2177, <a href="mailto:Karin_helmers@nih.gov">Karin_helmers@nih.gov</a>

disorders affect the cardiopulmonary, hematological, immunological, mental, and behavioral health of children.

Key to many new scientific findings is the NHLBI Specialized Centers of Research (SCOR) program on the Neurobiology of Sleep and Sleep Apnea (RFA HL-96-014). The objective of this SCOR program is to integrate the molecular, cellular, and genetic approaches to sleep control with clinical investigations on the etiology and pathogenesis of sleep disorders, particularly sleep apnea. In addition, the ongoing multicenter Sleep Heart Health Study is employing clinical and epidemiological approaches to examine whether subjects with high blood pressure have sleep apnea; whether sleep apnea is a contributing risk factor for the development of cardiovascular and cerebrovascular disease; and how age, gender, and ethnicity influence the association between apnea, hypertension, and stroke. Innovative biomedical technologies are being developed to improve diagnostic and treat-

ment approaches for sleep-disordered breathing under the Small Business Innovation Research (SBIR) Program.

The NHLBI also supports programs to train students, scientists, and physicians for basic and clinical research in cardiorespiratory physiology and medicine. The Institute is enhancing the awareness of medical students, physicians, and other health-care professionals about sleep and sleep disorders through the Sleep Academic Award program established in 20 medical schools. A web site has been developed for the Sleep Academic Award program (<http://www.aasmnet.org/MEDSleep>) through a partnership with the American Academy of Sleep Medicine. This site already has more than 45 sleep-related curriculum resources available for free access by all interested health faculty, and the final total will be more than 70 sleep curriculum resources.

A major activity of NCSDR is the preparation of expert panel reports to educate health professionals, patients, and the general public about sleep, chronic sleep loss, and common sleep disor-

ders. Another major focus is educating children and adolescents about sleep and the dangers of drowsy driving. A 5-year educational initiative introduced in early 2001 is targeting young children ages 7 to 11 about the importance of sleep using Garfield the Cat as our Star Sleeper to be a "spokescat" for healthy sleep education messages and utilizing a number of entertaining, interactive, and easy-to-use educational materials and activities (<http://starsleep.nhlbi.nih.gov>). Public health programs in partnership with other professional organizations are also being implemented to address adolescent sleep, sleep and fatigue in medical education, and surveillance of adverse consequences of chronic sleep loss.

#### SOURCE

From the National Center on Sleep Disorders Research (NCSDR), National Heart, Lung, and Blood Institute (NHLBI).